Remarks

Claims 1, 4-11, 14-20, 23 and 24 are pending in this application. The Office Action, in paragraph 2, rejects claims 25 and 27 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,100,999 to Ikegami. The July 11, 2008 Advisory Action, in paragraph 5, states that the cancellation of claims 25 and 27 by the May 7, 2008 Amendment After Final Rejection ("AAFR") renders this rejection moot.

Additionally, the Office Action, in paragraph 2, rejects claims 1, 4-11, 14-20, 23 and 24 under 35 U.S.C. §103(a) as being unpatentable over Ikegami in view of U.S. Patent Application Publication No. 2002/0107858 to Lundahl et al. (hereinafter "Lundahl"). Applicant respectfully traverses this rejection.

The Office Action, on page 5, concedes that Ikegami does not teach calculating a color signal pair accuracy of the target color signal pair on the basis of a relation between the target output color signal and the plurality of output vicinity color signals, as positively recited in the pending claims. The Office Action relies on Lundahl to overcome the deficiencies of Ikegami.

For the reasons set forth below, it is unreasonable to assert that the target color output signal corresponds to data element *j*, of Lundahl, and that the output vicinity color signals correspond to the set of data elements in a data matrix Y, as asserted in the Advisory Action. Specifically, Lundahl teaches that *j* represents the elements of matrix Y, and W represents the average of cluster *i* (para. [0219]). Lundahl does not teach any feature that can reasonably be considered, by one skilled in the art, to correspond to calculating a color signal pair accuracy of the target color signal pair on the basis of a relation between the target output color signal and the plurality of output vicinity color signals.

Lundahl, as discussed in paragraph [0008], teaches a method and system that allows for the incorporation of the respective independent qualities of objects into models, qualities that define predictive relationships between independent objects allowing for enhanced

market analysis by determining an optimum balance of marketing factors for a target demographic group. Lundahl does not teach any type of color signal analysis.

The Advisory Action asserts that Lundahl is directed to dynamic data analysis and is therefore appropriate for combination with any teaching comprising data analysis. This is incorrect. Lundahl teaches a specific application of cluster analysis which is unrelated to the subject matter of the pending claims, as discussed below, and as would be understood by one skilled in the art.

The subject matter of the pending claims are directed to predicting the color signal of an output color space (i.e., a printer) from a color signal of an input color space (i.e., a scanner). The prediction is determined by (1) extracting a target color signal pair from the color signal pair, the target color signal includes a target input color signal and a target output color signal, (2) extracting from the color signal pairs a plurality of output vicinity color signals corresponding to a plurality of input vicinity color signals which are located in the vicinity of the target input color signal in the input color space, and (3) determining the accuracy of the target color signal pair based on the relation between the target output color signal and the plurality of output vicinity color signals. Color signal pair accuracy being defined as the relationship between the target output color signal and the plurality of output vicinity color signals. Generally speaking, the input vicinity color signal located in the vicinity of the target input color signal should be mapped to a position in the vicinity of the target output color signal.

In contrast to the above, Lundahl, in paragraph [0219], teaches cluster analysis where the boundaries of the cluster are determined based on a predetermined distance from a cluster average, for data segregation. If this calculated distance is determined to exceed some predetermined value, then the respective element is considered an outlier, or positioned beyond the boundary of the cluster. Lundahl, in paragraph [0217], teaches an outlier as being

presumed to not be representative of the data as a whole, and therefore, excluded from the cluster. Lundahl does not teach any type of accuracy calculation as applied. Instead, Lundahl teaches a series of three computational steps. The first step, which is asserted to correspond to the pending claims, consists of a cluster analysis performed on a data matrix in order to segment the data into appropriate clusters for subsequent analysis. A second and third phase teach modeling steps. Lundahl has no corresponding feature in the pending application. Specifically, Lundahl teaches a cluster analysis only to segregate data elements, not to calculate color signal pair accuracy.

The Advisory Action asserts that the weighted distance calculation quantifies a degree of accuracy, which is used to determine whether a value is normal or abnormal. This is not the feature recited in the pending claims. The cluster analysis simply identifies the boundary of the cluster by some distance measure to segregate the data elements. The distance measure influences the shape of the cluster and determines only membership, with respect to the measured distance. Lundahl does not teach calculating a color signal pair accuracy of the target color signal pair on the basis of a relation between the target output color signal and the plurality of output vicinity color signals. Based on the teaching of Lundahl, it is possible that not all of the output vicinity color signals would even be considered, as they may be segregated.

Additionally, as discussed above, Lundahl does not teach a feature that can reasonably be considered to correspond to the target color signal pair, therefore, Lundahl cannot reasonably be considered to teach calculating the color signal pair accuracy using a color signal statistical distance, which is a statistical distance between the target output color signal and the plurality of output vicinity color signals. Instead, Lundahl only teaches a distance of each data element from the average, and not from a previously calculated or determined target output color signal. Determining whether or not a data element of a cluster,

as taught by Lundahl, should be classified as an outlier, does not correspond to calculating the color signal pair accuracy, as recited in the pending claims.

The Office Action, on page 5, concedes that Ikegami fails to teach calculating the color signal pair accuracy using a monotone decreasing and smooth function of the color signal statistical distance, as positively recited in the pending claims. The Office Action again asserts that Lundahl teaches this feature. However, this assertion is incorrect. Lundahl teaches, in paragraph [0193], a weighting function, which is drawn to weighting each point based on a cluster weight density, as discussed in paragraph [0194]. A distance function, as discussed in paragraphs [0219] - [0220], is not monotonically decreasing. Because w(s) is not a function of the weighted distance d_W, and the distance function d_W is not monotonically decreasing, in addition to the reasons argued above, Lundahl cannot reasonably be considered to teach, calculating the color signal pair accuracy using a monotone decreasing and smooth function of the color signal statistical distance, as positively recited in the pending claims.

The Office Action asserts that it would have been obvious to one of ordinary skill in the art at the time of the invention to have combined Ikegami and Lundahl to render obvious the subject matter of the pending claims. This assertion is incorrect. Ikegami teaches predicting the output signal corresponding to an arbitrary input signal and an input signal corresponding to an arbitrary output signal, or using an arbitrary output signal and a part of an input signal to predict the remaining part of the input signal. As discussed in col. 3, lines 5-10 of Ikegami, this makes it possible to predict color transfer characteristics without being dependent on the color image input/output device. In other words, Ikegami teaches converting input color values to output color values suitable for printing, without reliance on any correction or offset corrections which may be required based on the specific type of hardware of the printing, or output, device.

The color quality maintenance of Ikegami cannot reasonably be considered to

correspond to the predictive relationships between independent objects, as taught by Lundahl. One skilled in the art would not look to the teachings of Lundahl to address the problems identified by the Applicant.

It would not have been obvious to one of ordinary skill in the art at the time of the invention to have combined Ikegami and Lundahl. Ikegami teaches maintaining a particular correspondence between input and output points, regardless of intervening conditions. Lundahl teaches creating dynamic optimizations based on a plurality of independent factors, in an attempt to determine predictive behaviors. There is no logical rationale presented that would have led one skilled in the art to combine the references applied, and the references themselves provide no viable rationale for combining the references in some predictable fashion that would render the pending claims obvious.

For at least the above reasons, Ikegami and Lundahl are not combinable in the manner suggested by the Office Action, no evidence of predictability for combining these references with any reasonable expectation of success has been shown, and no permissible combination of Ikegami and Lundahl can reasonably be considered to have suggested the combinations of all of the features positively recited in pending independent claims 1, 9, 11, 19, 23 and 24. Claims 4-8, 10, 14-18 and 20 also would not have been suggested by this combination of references for at least the respective dependence of these claims on allowable base claims, as well as for the separately patentable subject matter that each of these claims recite.

Accordingly, reconsideration and withdrawal of the rejection of claims 1, 4-11, 14-20, 23 and 24 under 35 U.S.C. §103(a) as being unpatentable over the asserted combinations of references are respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 4-11, 14-20, 23 and 24 are earnestly solicited.